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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/818,499	03/28/2001	Shinji Tadaki	1082.1036	2280

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EXAMINER

PERRY, ANTHONY T

ART UNIT	PAPER NUMBER
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2879

DATE MAILED: 11/06/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/818,499

Applicant(s)

TADAKI ET AL.

Examiner

Anthony T Perry

Art Unit

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NW

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1 and 3-27 is/are pending in the application.
- 4a) Of the above claim(s) 21-27 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1 and 3-20 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 28 March 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_ 6) ☐ Other:

## DETAILED ACTION

### *Response to Amendment*

The amendment filed on 7/31/03, has been entered and acknowledged by the Examiner.

Cancellation of claim 2 has been entered.

### *Claim Rejections - 35 USC § 102*

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in-

(1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effect under this subsection of a national application published under section 122(b) only if the international application designating the United States was published under Article 21(2)(a) of such treaty in the English language; or

(2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that a patent shall not be deemed filed in the United States for the purposes of this subsection based on the filing of an international application filed under the treaty defined in section 351(a).

Claims 1-4 are rejected under 35 U.S.C. 102(e) as being anticipated by Horiuchi et al. (JP 10-146273) (US patent 6,184,621 used as translation).

Regarding claims 1, 2, 3 and 4, Fig. 1 shows a plasma display panel comprising electrodes arranged on a substrate on a rear-side, a dielectric layer provided covering the electrodes and a fluorescent layer formed on the front-side of the dielectric layer. The layer is formed of a mixture of a base material (glass) and a filler such as silica powder, alumina powder, etc. (col. 13, lines 43-45). The filler has a smaller relative dielectric constant than the base material, and the dielectric layer has a smaller relative dielectric constant and a larger reflectance than a layer formed of the base material without the filler. The relative dielectric constant of the dielectric layer is less than 10.

Regarding claim 6, the Horiuchi references teaches the thickness of the dielectric layer is preferably from 5 to 20 $\mu$ m in terms of the formation of a uniform dielectric layer and therefore teaches a thickness less than 10 $\mu$ m. If the thickness exceeds 20 $\mu$ m then, at the time of firing, the removal of the organic component is difficult and cracks are readily produced and, furthermore, the stress applied to the substrate is large, so there is the problem that the substrate warps. Moreover, with less than 5 $\mu$ m it is difficult to secure thickness uniformity (col. 11, lines 23-31).

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 5 and 7-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Horiuchi et al. (JP 10-146273) (US patent 6,184,621 used as translation).

Regarding claim 5, it is noted that the applicant's specific type of filler being hollow micro-balloons, does not solve any of the stated problems or yield any unexpected result that is not within the scope of the teachings applied. Therefore it is considered to be a matter of choice, which a person of ordinary skill in the art would have found obvious to select any appropriate filler (silica, glass micro-balloons, alumina, etc.) for the dielectric layer as long as it reduces the relative dielectric constant and increases the reflectance.

Regarding claims 7 and 8, the Horiuchi reference teaches a plasma display panel comprising a dielectric layer in which a filler for enhancing reflectance is dispersed (col. 13, lines 43-45). It is noted that the applicant's specific type and shape of the filler being mica flakes with titanium dioxide coating, does not solve any of the stated problems or yield any unexpected result that is not within the scope of the teachings applied. Therefore it is considered to be a matter of choice, which a person of ordinary skill in the art would have found obvious to select any suitable type and form for the filler (hollow glass, silica powder, alumina particles, titania-coated mica flakes, etc.) for the dielectric layer as long as it reduces the relative dielectric constant and increases the reflectance.

Regarding claims 9-12, Horiuchi teaches of a dielectric layer containing silicon oxide, a low-melting-point glass, as a base material. Horiuchi further teaches that the filler make up 5-50 wt% of the dielectric layer which includes 10-50 wt% which is within the range of 10-80 wt% (col. 13, lines 31-49).

Regarding claim 13 and 17, in Fig. 1, Horiuchi teaches a plasma display panel substrate structure that comprises barrier ribs for partitioning a discharge space, wherein the sidewalls of the barrier ribs are covered with the dielectric layer.

Regarding claim 14 and 18, the barrier ribs may be black so as to improve the contrast (col. 15, lines 15-18).

Regarding claim 15, Horiuchi teaches that the addition of various black metal oxides may be added to the barrier ribs to color them black to improve the contrast of the display device (col. 15, lines 16-22). By adding the black metal oxides the light transmission of the barrier ribs per

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unit length is significantly decreased improving the contrast of the display by forming a black pattern. Horiuchi does not specifically state the transmission per unit length of the black barrier ribs. However, it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. Thus, it would have been obvious to one of ordinary skills in the art at the time the invention was made to provide an acceptable transmission of visible light per unit length of the black barrier ribs, since optimization of workable ranges is considered within the skill of the art.

Regarding claim 16, Horiuchi teaches several materials acceptable for the filler of the dielectric layer. Horiuchi teaches that by adding such fillers the reflectivity of the dielectric layer is significantly raised, providing a plasma display of high luminosity. Horiuchi does not specifically state the reflectance per unit length of the dielectric layer. However, it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. Thus, it would have been obvious to one of ordinary skills in the art at the time the invention was made to provide an acceptable reflectance per unit length of the dielectric layer, since optimization of workable ranges is considered within the skill of the art.

Regarding claims 19-20, Fig. 1 of the Horiuchi reference shows a light-shielding layer (MgO layer) provided on the front side with respect to a discharge space and the dielectric layer provided on the rear side with respect to the light-shielding layer. The front plate portion of the plasma display panel in Fig. 1 shows a dielectric layer and a light-shielding layer (MgO layer) provided on a substrate.

### ***Response to Arguments***

In response to the Applicant's argument that the Horiuchi reference fails to teach utilizing a dielectric layer being formed of a base and a filler, the dielectric layer having dielectric constant with a smaller dielectric constant  $\leq 10$  and a larger reflectance than a layer formed of the base material but not containing a filler, the Examiner respectfully disagrees. Horiuchi teaches the dielectric layer being formed of a base material (glass) and a filler (such as alumina or silica) (col. 13, lines 43-47). Horiuchi teaches that by including the filler to the base material, the reflectivity of the dielectric layer is raised (col. 13, lines 47-49). The Applicant is correct in that the Horiuchi reference does not specifically state relative dielectric constant of the dielectric layer. However, Horiuchi does teach the base material being glass and provides a suitable filler, such as silica. The dielectric constant of glass is 3.7-10 and the dielectric constant of silica is 2.5-3.5. Therefore, even if the dielectric constants are given their highest values, the mixture of the two will result in a relative dielectric constant of less than 10 and the dielectric constant is smaller than if the dielectric layer were formed of the base material alone. The Examiner has included sections of ASI Instruments Inc. <sup>TM</sup> Dielectric Constant Reference Guide showing the dielectric constants of each material (circled) including the dielectric constant of alumina, an alternative filler taught by the Horiuchi reference.

### ***Conclusion***

**THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

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A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to *Anthony Perry* whose telephone number is (703) 305-1799. The examiner can normally be reached between the hours of 9:00AM to 5:30PM Monday thru Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nimesh Patel, can be reached on (703) 305-4794. The fax phone number for this Group is (703) 308-7382.

Communications via Internet e-mail regarding this application, other than those under 35 U.S.C. 132 or which otherwise require a signature, may be used by the applicant and should be addressed to [Anthony.perry@uspto.gov].

*All Internet e-mail communications will be made of record in the application file. PTO employees do not engage in Internet communications where there exists a possibility that sensitive information could be identified or exchanged unless the record includes a properly signed express waiver of the confidentiality requirements of 35 U.S.C. 122. This is more clearly*




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*set forth in the Interim Internet Usage Policy published in the Official Gazette of the Patent and Trademark on February 25, 1997 at 1195 OG 89.*

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (703) 308-0956.



Anthony Perry  
Patent Examiner  
Art Unit 2879  
October 27, 2003



VIP PATEL  
PRIMARY EXAMINER